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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 942,708	08/31/2001	Richard B. Thompson	3645-0104P	9931

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EXAMINER

SRIVASTAVA, KAILASH C

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 07/18/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,708

Examiner

Dr. Kailash C. Srivastava

Applicant(s)

THOMPSON ET AL.

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/11/2001 as Paper Number 4.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-24 are pending.

Election /Restriction

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
- Group I, consisting of claims 1, 3-4, 6-7, 9 and 10-12 drawn to a composition comprising an apo-carbonic anhydrase and a first set of photo-luminescent compounds, classified under Class 435, subclass 232, for example.
 - Group II, consisting of claims 1, 3-4, 6-7, 9 and 10-12 drawn to a composition comprising a reaction product formed from the reaction of an apo-carbonic anhydrase and a second set of photo-luminescent compounds, classified under Class 530, subclass 350 or Class 436 subclass 86, for example.
 - Group III, consisting of claims 2, 5, 8 and 13 drawn to another composition comprising an apo-carbonic anhydrase and a third set of photo-luminescent compounds, classified under Class 436, subclass 13, for example.
 - Group IV, consisting of Claims 14-22 and 24 drawn to a process and a kit to identify a divalent metal ion, classified under Class 436, subclass 81.
 - Group V, consisting of Claim 23 drawn to another kit to assay a divalent metal ion comprising an apo-carbonic anhydrase protein, a photo-luminescent molecule, a chelating agent and a buffer, classified under Class 435, subclass 4.
3. The inventions are distinct, each from the other because of the following reasons:

Inventions in Group I is related to inventions in Groups II and III as combination/ sub-combination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the sub-combination as claimed for patentability, and (2) that the sub-combination has utility by itself or in other combinations [MPEP § 806.05(c)]. In the instant case, the combination does not require the particulars of the sub-combination as claimed for patentability because the combination (i.e., product of reaction between a protein and photo-luminescent compound) by itself would be patentable even if the sub-combination (i.e. photo luminescent compound and the protein) was known and non-obvious, assuming that the prior art does not teach or suggest the presence of the additional ingredients recited in the combination claims. The sub-combination (photo-luminescent compound and the protein) has utility of its own because it will be applicable to determine/identify another material (e.g., an antibody-antigen reaction). Further, each of the sets of photo-luminescent compounds is distinct.

Inventions in Groups I, II and III are related to inventions in Groups IV and V as product and use thereof. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product [MPEP § 806.05(h)]. In the instant case, the composition comprising a protein and a photo-luminescent compound or product of a reaction between them is used to determine a divalent metal. Alternatively, this process of identifying a divalent metal may also be accomplished by purely chemical means wherein a change in the transmission or absorption of light is an indication of a divalent metal ion (e.g., identification of Fe^{++} formed as a result of reduction of Fe^{+++}); Similarly the conjugated assay between a protein and luminescent compound cited *supra* may also be used to identify a biomolecule (e.g., a sandwiched ELISA tests).

Inventions in Groups II and III are unrelated to each other because they are directed to different inventions that are not connected in design, operation and/or effect. These inventions are independent since they are not disclosed as capable of use together. They have different modes of operation, they have different functions, and/or they have different effects. One would not have to practice the various methods at the same time to practice just one method alone (MPEP § 806.04, MPEP § 808.01). In the instant case, for example invention disclosed in claims encompassing invention in Group has a different composition than that of claims encompassed in invention claimed in Group.

Inventions in Groups IV and V are also unrelated to each other because they are directed to different inventions that are not connected in design, operation and/or effect. These inventions are independent since they are not disclosed as capable of use together. They have different modes of operation, they have different functions, and/or they have different effects. One would not have to practice the various methods at the same time to practice just one method alone (MPEP § 806.04, MPEP § 808.01). In the instant case, for example invention disclosed in claims encompassing invention in Group IV has a different composition than that of claims encompassed in invention claimed in Group V.

Inventions discussed above are independent and distinct, each from the other. They have acquired a separate status in the art as a separate subject for inventive effect and require independent searches. The search for each one of the above inventions is not coextensive particularly with regard to the literature search. Further, a reference that would anticipate the invention of one group would not necessarily anticipate or even make obvious another group. Finally, the consideration for patentability is different in each case. Thus, it would be an undue burden to examine all of the above inventions in one application.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification (i.e., class and/or subclass), and their recognized diverse subject matter, restriction for examination purposes as indicated is proper.

Species Election

4. This application contains claims directed to different compositions/methods comprised of a variety of ingredients. Therefore, if applicants elect invention outlined in one of Groups I-II or IV-V above, applicants must also make election of species by electing a single species from category a below:

a. Only one photoluminescent compound among: dansyl aziridine, 4-chloro-7-sulfobenzofurazan, 7-fluorobenz-2-oxa-1,3-diazole-4-sulfonamide or 4-nitrobenzoxadiazol-7-chloride.

If, however, applicants elect invention outlined in one of Groups III or IV-V above, applicants must also make election of species by electing a single species from category b below:

b. Only one photoluminescent compound among: 7-fluorobenz-2-oxa-1,3-diazole-4-sulfonamide; β -mercaptoethanol adduct, dansylamide, hydroxynaphthalenesulphonamide, 2-(3-methoxy-4-ethoxyphenyl)-4-chloroquinoline-6-sulfonamide, N-(1-anthracenyl)-4-sulfonamido-benzenesulfonamide, ethyl-2-(4-sulfonamidophenyl)-4-hydroxyquinoline-6-carboxylate and N-(N'-(4'-sulfamoylglutaranily-amidoethyl))-4-amino-3,6-disulfo-1,8-naphthalimide.

5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement is traversed (37 CFR 1.143).

In accordance with 37 CFR 1.499, applicant is required that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species [MPEP § 809.02(a)].

6. Applicant is reminded that upon cancellation of claims to a non-elected invention and species, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any

amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kailash C. Srivastava whose telephone number is (703) 605-1196. The examiner can normally be reached on Monday to Thursday from 7:30 A.M. to 6:00 P.M. (Eastern Standard or Daylight Savings Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743 Monday through Thursday. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Kailash C. Srivastava, Ph.D.
Patent Examiner
Art Unit 1651
(703) 605-1196

July 17, 2003

Jon P. Weber, Ph.D.
Primary Examiner